

REMARKS/ARGUMENTS

Applicant thanks the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office Action, and amended as necessary to more clearly and particularly describe the subject matter that Applicant regards as the invention. Applicant respectfully submits that the present application is in a condition for allowance in view of the following remarks.

Objections to the Specification

Applicant has replaced the paragraph that included the informalities identified in the Office action with a corrected paragraph. No new matter has been added.

Claim Rejections – 35 U.S.C. § 103(a)

Claims 1-3 stand rejected under 35 U.S.C. §103(a) as being unpatentable over JP 2001-148678 (hereinafter “JP ‘678”) in view of JP 1999-215095 (hereinafter “JP ‘095”). However, applicant respectfully submits that the combination of JP ‘678 and JP ‘095 fail to teach, suggest or otherwise render obvious every feature of the invention claimed in the claims, as amended.

Regarding amended claim 1, the combination of references fails to teach, suggest or otherwise render obvious “a modulator that modulates a plurality of sub-carriers arranged in a two-dimensional matrix in a complex plane according to first data, the matrix including a plurality of sub-carriers arranged in a direction of a frequency axis and a plurality of sub-carriers in a direction of a time axis.” JP ‘678 appears to modulate sub-carriers arranged only along the frequency axis, such as shown in Figure 2, for example. This modulation of sub-carriers in JP ‘678 is analogous to the modulation of sub-carriers according to the prior art discussed in the Background Art section of the present application with reference to Figure 7. Specifically, both Figure 7 of the present application and JP ‘678 illustrate conventional modulation of orthogonal sub-carriers along the frequency axis.

Likewise, JP ‘095 also fails to disclose the modulation of sub-carriers distributed throughout the two-dimensional matrix along the frequency and time axes claimed in amended

claim 1. JP ‘095 also teaches modulation of a sub-carriers distributed only along the frequency axis, as shown in Figure 2 of JP ‘095, for example.

Further with regard to claim 1, the combination of JP ‘678 and JP ‘095 fails to teach, suggest or otherwise render obvious “a determining unit which determines a pattern of particular signals associated with second data.” The absence of the determining unit from the transmitter of JP ‘678 is noted in the Office action. JP ‘095, cited as disclosing such a feature, discloses a mapping circuit 222 as the determining portion, but the portion of JP ‘095 discussing the mapping circuit 222 cited as the determining unit is a description of the OFDM receiver 23. *See, e.g., ¶[0035].* Accordingly, applicant respectfully submits that the combination of JP ‘678 and JP ‘095 fails to teach, suggest or otherwise render obvious a transmitter including a determining unit which determines a pattern of particular signals associated with second data as claimed in amended claim 1.

With regard to claim 2, applicant respectfully submits that the combination of JP ‘678 and JP ‘095 fails to teach, suggest or otherwise render obvious every feature recited in claim 2, as amended.

For reasons analogous to those above regarding claim 1, JP ‘678 and JP ‘095 fail to teach, suggest or otherwise render obvious “a detecting unit which detects a pattern of particular signals associated with first data which are allocated to sub-carriers of a two-dimensional matrix formed by arranging a plurality of sub-carriers in a direction of a frequency axis and a plurality of sub-carriers arranged in a direction of a time axis.” As mentioned above, JP ‘678 and JP ‘095 both fail to disclose the two-dimensional matrix including a plurality of sub-carriers arranged along both the frequency and time axes. It follows that JP ‘678 and JP ‘095 also fail to teach a receiver including a detecting unit for detecting the pattern of signals associated with first data from sub-carriers arranged in such a matrix. Moreover, it must follow that JP ‘678 and JP ‘095 must also fail to teach, suggest or otherwise render obvious a demodulating unit that demodulates second data from sub-carriers arranged in such a matrix at locations other than where the sub-carriers modulated according to the particular signals are located.

Accordingly, applicant respectfully submits that the combination of JP ‘678 and JP ‘095 fail to teach, suggest or otherwise render obvious every feature recited in amended claim 2 as required to maintain a rejection of that claim under 35 U.S.C. §103(a).

Applicant has added new claim 4 by way of this amendment. Support for claim 4 can be found at least in the paragraph beginning on line 17 on page 10 in the specification of the present application. Among other locations in the specification, this passage explains that the number of sub-carriers and the number of OFDM symbols can be freely changed.

Further with regard to new claim 4, applicant respectfully submits that JP '678 and JP '095 both fail to teach, suggest or otherwise render obvious the limitations recited in claim 4. As discussed above, JP '678 and JP '095 both fail to make any mention of the two-dimensional matrix of sub-carriers disposed along the frequency and time axes. It follows then that JP '678 and JP '095 also fail to disclose a variable nature of the dimensions of such a matrix as claimed in new claim 4.

For at least the above reasons, JP '678 and JP '095 fail to teach every limitation found in amended claims 1 and 2 and new claim 4 as required to maintain a rejection of that claim under 35 U.S.C. §103(a). Further, since claim 3 depends from claim 1 or 2, it is also patentable over the combination of JP '678 and '095 for the purposes of 35 U.S.C. §103(a).

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. NGB-38438.

Respectfully submitted,
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